

**We claim:**

1. A method of metering at least one solid, particulate catalyst and/or process auxiliary into a reactor (5) containing a fluidized bed (11) of particles in an at least partly gaseous medium, in which the catalyst and/or process auxiliary is metered discontinuously at prescribed time intervals into the fluidized bed (11) at at least one metering point (10), wherein a fluid stream is in each case introduced into the reactor (5) so that a region having a reduced particle density is formed in the fluidized bed (11) around the metering point or points (10) and the catalyst or catalysts and/or process auxiliary or auxiliaries is/are subsequently metered into this region.
2. A method as claimed in claim 1, wherein the fluid stream is a gas stream.
3. A method as claimed in claim 1, wherein the fluid stream is a liquid stream and the liquid vaporizes under the conditions prevailing in the reactor (5).
4. A method as claimed in any of the preceding claims, wherein the region having a reduced particle density has a particle density of less than  $0.1 \text{ g/cm}^3$ , in particular less than  $0.01 \text{ g/cm}^3$ .
5. A method as claimed in claim 4, wherein the region having a reduced particle density is substantially free of particles.
6. A method as claimed in any of the preceding claims, wherein the fluid stream is introduced discontinuously for a period of from 0.5 to 60 s and the catalyst is metered in after a delay of from 0.5 to 3 s after commencement of the introduction of the fluid stream.
7. A method as claimed in any of claims 1 to 5, wherein the fluid stream is introduced continuously.
8. A method as claimed in any of the preceding claims, wherein at least one solid, free-flowing catalyst suitable for the polymerization of  $\alpha$ -olefins is used.
9. A method as claimed in any of the preceding claims, wherein the fluid stream is formed by one or more inert gases from the group consisting of  $\text{C}_2$ - $\text{C}_3$ -alkanes and  $\text{N}_2$ .
10. A method as claimed in any of the preceding claims, wherein the catalyst is introduced at a distance (x) of at least 1 cm from the interior wall (9) of the reactor (5).

11. A method as claimed in any of the preceding claims, wherein the catalyst is introduced into the reactor (5) by means of the fluid stream.
12. A method as claimed in any of claims 1 to 10, wherein the fluid stream is introduced into the reactor (5) essentially concentrically around the metering point (10) for the catalyst and the catalyst is introduced at the metering point (10) with the aid of a further fluid stream.
13. A method as claimed in claim 12, wherein the fluid stream is introduced at a distance (y) of at least 1 cm from the interior wall (9) of the reactor (5).
14. A continuous polymerization process for preparing ethylene and propylene homopolymers and copolymers, in which ethylene, propene or mixtures comprising ethylene or propene and other C<sub>2</sub>-C<sub>8</sub>- $\alpha$ -olefins are polymerized at from 30 to 150°C and a pressure of from 0.5 to 6 MPa in the presence of a catalyst in a gas-phase fluidized-bed reactor (5) containing a fluidized bed (11) of finely divided polymer, wherein a method for metering the catalyst and/or process auxiliary as claimed in any of the preceding claims is employed.
15. An apparatus for carrying out the method as claimed in any of claims 10 to 13, comprising
- a gas-phase fluidized-bed reactor (5) containing a fluidized bed (11) of particles in a reactor gas, where the reactor (5) has a wall (9) which is arranged essentially parallel to the flow direction of the reactor gas and bounds the fluidized bed,
  - at least one reservoir unit (1a) for storing at least one catalyst and/or process auxiliary,
  - a portioning unit (1b) for providing portions of the catalyst and/or process auxiliary in a prescribed amount, which is connected to the reservoir unit or units (1a) by a first connecting line (7a),
  - a valve unit (1c) for introducing the portions of catalyst and/or process auxiliary into the fluidized bed of the reactor (5) at at least one metering point (10), where the valve unit (1c) is connected to the portioning unit (1b) by a second connecting line (7b) and is connected to the reactor (5) at the metering point or points (10),
  - a fluid feed line (8a, 8b) through which a fluid, in particular an inert gas, can be feed to the reservoir unit (1a) and the second connecting line (7b),

wherein the metering point or points (10) is/are at a distance of at least 1 cm from the wall (9) of the reactor (5).

5 16. An apparatus as claimed in claim 15, wherein the metering point (10) is at a distance of from 2 to 100 cm from the wall (9) of the reactor (5).

10 17. An apparatus as claimed in claim 15 or 16, wherein at least one further metering point (12) for a fluid stream is provided essentially in the form of an annulus around the metering point (10) for the catalyst and/or process auxiliary.

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